

WHAT IS CLAIMED IS:

1. A photoconductive imaging member comprised of a substrate, a photogenerating layer, and thereover a charge transport layer comprised of a charge transport component or components, a polymer binder and metal oxide particles, wherein said metal oxide particles contain or are attached with or to a silane or a siloxane, or alternatively a polytetrafluoroethylene.

2. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide is selected from the group consisting of aluminum oxide, silicon oxide, titanium oxide, cerium oxide, and zirconium oxide, and said attachment is accomplished at the surface of said metal oxide particles.

3. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles have a diameter size of from about 1 to about 250 nanometers, and said attachment is accomplished at the surface of said metal oxide particles.

4. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are of a diameter size of from about 1 to about 199 nanometers.

5. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are present in said charge transport layer in an amount of from about 0.1 to about 50 percent by weight of total solids.

6. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are present in said charge transport layer in an amount of from about 1 to about 30 percent by weight of total solids.

7. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are produced by a plasma reaction process.

8. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are produced by a vapor phase synthesis process.

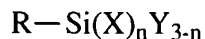
9. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are comprised of crystalline aluminum oxide.

10. A photoconductive imaging member in accordance with **claim 9** wherein said crystalline aluminum oxide particles contain at least about 50 percent of γ -type crystalline particles.

11. A photoconductive imaging member in accordance with **claim 9** wherein said crystalline comprised of from about 50 percent to about 90 percent of a γ -type crystalline structure, and from about 10 percent to about 50 percent of a δ -type crystalline structure.

12. A photoconductive imaging member in accordance with **claim 9** wherein said aluminum oxide particles have a BET value of from about 20 to about 100 m²/gram.

13. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles are surface-attached with a silane of Formula (I)



(I)

wherein R and X each independently represent an alkyl group of from about 1 to about 30 carbon atoms, an aryl group optionally with from about 6 to about 60 carbon atoms, a substituted alkyl group or a substituted aryl group optionally with from about 1 to about 30 carbon atoms; Y represents a reactive group that enables the attachment of the silane to the metal oxide particle surface, and n represents 0, 1, or 2.

14. A photoconductive imaging member in accordance with **claim 13** wherein said alkyl group is selected from a group consisting of methyl, ethyl, hexyl, octyl, and cyclohexyl; and said aryl group is selected from a group consisting of phenyl, tolyl, biphenyl, benzyl, and phenylethyl.

15. A photoconductive imaging member in accordance with **claim 13** wherein said substituted alkyl or said substantial aryl is selected from the group consisting of chloromethylene, trifluoropropyl, tridecafluoro-1,1,2,2-tetrahydrooctyl, chlorophenyl, fluorophenyl, and perfluorophenyl.

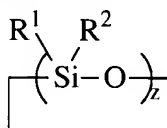
16. A photoconductive imaging member in accordance with **claim 13** wherein said Y is selected from the group consisting of a halogen, a hydroxyl, and an alkoxy.

17. A photoconductive imaging member in accordance with **claim 16** wherein said alkoxy is selected from a group consisting of methoxy, ethoxy, propoxy, and isopropoxy.

18. A photoconductive imaging member in accordance with **claim 13** wherein said silane is selected from the group consisting of methyltrimethoxysilane, ethyltrimethoxysilane, methyltriethoxysilane, propyltrimethoxysilane, octyltrimethoxysilane, trifluoropropyltrimethoxysilane, tridecafluoro-1,1,2,2-tetrahydrooctyltrimethoxysilane, p-tolyltrimethoxysilane, phenyltrimethoxysilane, phenylethyltrimethoxysilane, benzyltrimethoxysilane, diphenyldimethoxysilane, dimethyldimethoxysilane, diphenyldisilanol, cyclohexylmethyldimethoxysilane, vinyltrimethoxysilane, 3-glycidoxypropyl trimethoxy-silane, 3-(trimethoxysilyl) propylmethacrylate, and mixtures thereof.

19. A photoconductive imaging member in accordance with **claim 13** wherein said silane is selected from the group consisting of phenyltrimethoxysilane, phenylethyltrimethoxysilane, benzyltrimethoxysilane, p-tolyltrimethoxysilane and methyltrimethoxysilane.

20. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide is surface grafted with a cyclic siloxane of Formula (II)



(II)

wherein R¹ and R² each independently represent an alkyl of from about 1 to about 30 carbon atoms, an aryl optionally with from about 6 to about 60 carbon atoms, a substituted alkyl or a substituted aryl optionally with from about 1 to about 30 carbon atoms, and z represents the number of segments, which number is optionally from about 3 to about 10.

21. A photoconductive imaging member in accordance with **claim 20** wherein said cyclic siloxane is selected from the group consisting of hexamethylcyclotrisiloxane, 2,4,6-trimethyl-2,4,6-triphenylcyclotrisiloxane, 2,4,6,8-tetramethyl-2,4,6,8-tetraphenylcyclotetrasiloxane, hexaphenylcyclotrisiloxane, octamethylcyclotetrasiloxane, octaphenylcyclotetrasiloxane, and 2,4,6,8-tetramethyl-2,4,6,8-tetravinylcyclotetrasiloxane.

22. A photoconductive imaging member in accordance with **claim 1** wherein said metal oxide particles contain, attached on the surface thereof, said silane or said siloxane present in an amount of from about 1 percent to about 30 percent by weight based on said metal oxide particles.

23. A photoconductive imaging member in accordance with **claim 1** wherein said charge transport layer binder is selected from the group consisting of a polycarbonate resin, polyester, polyarylate, polyether, and polysulfone.

24. A photoconductive imaging member in accordance with **claim 1** wherein said charge transport layer further contains charge transport molecules in an amount of from about 20 percent to about 50 percent by weight of total solids.

25. A photoconductive imaging member in accordance with **claim 24** wherein said charge transport molecules are hole transport molecules selected from the group consisting of N,N'-diphenyl-N,N-bis(3-methyl phenyl)-1,1'-biphenyl-4,4'-diamine, N,N-bis(3,4-dimethyl phenyl)-N-biphenylamine, and N,N,N-triphenylamine.

26. A photoconductive imaging member in accordance with **claim 1** wherein said charge transport layer further contains polytetrafluoroethylene particles optionally present in an amount of from about 1 to about 10 weight percent.

27. A photoconductive imaging member in accordance with **claim 26** wherein said polytetrafluoroethylene particles are of a diameter of from about 10 to about 500 nanometers.

28. A photoconductive imaging member in accordance with **claim 1** wherein the imaging member further contains a second charge transport layer situated between said photogenerating layer and first charge transport layer, and wherein said second charge transport layer is comprised of a binder and hole transport molecules.

29. A photoconductive imaging member comprised of a substrate, a photogenerating layer, and in contact with said photogenerating layer a composite charge transport layer comprised of an aromatic resin and metal oxide particles, wherein said metal oxide particles are surface-attached with an arylsilane/arylsiloxane component having π - π interactions with said aromatic resin.

30. A photoconductive imaging member in accordance with **claim 29** wherein said aromatic resin is selected from the group consisting of an aromatic polycarbonate, an aromatic polyester, an aromatic polyether, an aromatic polyimide, and an aromatic polysulfone.

31. A photoconductive imaging member in accordance with **claim 29** wherein said aryl of said arylsilane/arylsiloxane is selected from the group consisting of a phenyl, a benzyl, a phenylethyl, and a naphthyl.

32. A photoconductive imaging member comprised of a conductive metal substrate selected from the group consisting of an aluminum drum, an aluminized polyethylene terephthalate or a titanized polyethylene terephthalate; a photogenerating layer comprised of a pigment selected from the group consisting of hydroxygallium phthalocyanine and chlorogallium phthalocyanine; an outmost or first composite charge transport layer comprised of a hole transport selected from the group consisting of N,N'-diphenyl-N,N-bis(3-methyl phenyl)-1,1'-biphenyl-4,4'-diamine and N,N-bis(3,4-dimethyl phenyl)-N-biphenylamine, a polycarbonate binder, and crystalline aluminum oxide particles attached with a silane.

33. A photoconductive imaging member in accordance with **claim 32** wherein said aluminum oxide particles are comprised of at least about 50 percent of γ -type crystalline with a particle size of from about 1 to about 250 nanometers, and a BET value of from about 20 to about 100 m²/gram, and said silane is an aryl silane.

34. A photoconductive imaging member in accordance with **claim 32** wherein the imaging member further contains a charge transport layer situated between said photogenerating layer and said outmost composite charge transport layer, and wherein the charge transport layer is comprised of a polycarbonate binder and hole transport component selected from the group consisting of N,N'-diphenyl-N,N-bis(3-methyl phenyl)-1,1'-biphenyl-4,4'-diamine and N,N-bis(3,4-dimethyl phenyl)-N-biphenylamine.